



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE  
PUBLIC HEALTH SERVICE  
NATIONAL INSTITUTES OF HEALTH  
BETHESDA, MARYLAND 20014

December 29, 1969

Prof. Joshua Lederberg  
Department of Genetics  
Stanford University School of Medicine  
Stanford, California 94305

Dear Dr. Lederberg:

Your letter of December 22 arrived just as I was about to write to you to say that we were very much interested in your column in the Washington Post on December 27. The headline based on your opening sentence was excellent, as was the observation concerning the unsung value of prevention (through a knowledge of etiology).

In answer to your questions: Birth weight is reduced by maternal cigarette-smoking during pregnancy, but to my knowledge there has been no satisfactory study of leukemogenesis in this regard. There is no excess of malformations or perinatal mortality associated with cigarette smoking--only low birth rate, as I recall.

In the October 31 issue of Science, I have a paper that gives my thoughts on the question of intrauterine leukemogenesis (the reprints have not arrived yet). I am troubled about the biologic plausibility that radiation accounts for an equal increase in each form of childhood cancer. We suspect not that each conceptus is at the same risk of radiation leukemogenesis but that there is a subgroup of supersusceptible fetuses or newborns whose first encounter with a leukemogen induces the neoplasm. We believe that the age-peak in mortality at 4 years is not due to radiation alone, or even largely due to it. The basis for our view is given in the enclosed reprint, along with a laboratory procedure that has been successfully used to evaluate the potentiation of x-ray effects by SV-40. Other agents, including experimental vaccines, may be tested in the same fashion.

We have looked at data on leukemia in the NINDB Perinatal Study and found only a handful of cases.

Your proposal for a graduate program in Environmental Health was familiar to me because Dr. Lawrence E. Hinkle at Cornell proposed just such a plan about 2 years ago to the National Institute for Environmental Health Sciences (Dr. Paul Kotin, Director). There was great interest at

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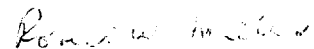
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that time in providing training grants to universities to conduct such programs. Should you wish to write to Dr. Kotin about this, his address is:

Dr. Paul Kotin  
National Environmental Health  
Sciences Center  
P. O. Box 12233  
Research Triangle Park  
North Carolina 27709

I believe that much can be done in this regard in clinical medicine if selected medical students or junior staff members were given small grants in return for which they would obtain from ward patients etiologically oriented information, especially pedigrees and histories of occupational and other environmental exposures. Much can be learned in this way at very little expense. Participants who do well could then be encouraged to obtain further formal training.

Sincerely,



Robert W. Miller, M.D.  
Chief, Epidemiology Branch  
National Cancer Institute

RWM:mlp